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A Plan for the Care of Premature Babies*

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The problem of the care of premature babies is a serious one to both hospitals and health departments. It is also a matter of deep concern to physicians and parents. Prematurity is a relatively common condition. It carries a high mortality, and its treatment entails both great expense and considerable organization.

I have been asked to speak on the subject, "A Plan for the Care of Premature Babies." To a public health physician, a more appropriate title might be "A Plan for the Abolition of the Necessity for a Plan for the Care of the Premature Baby." A more realistic title would be "A Plan for the Control of Prematurity."

In the field of disease control, such a plan includes a statement of objectives, a definition of the problem, and an analysis of the causative factors responsible for the appearance and spread of the disease under consideration. We study the life cycle of the infectious agent and the means of transmission, we study the factors of host resistance, and we look for the points at which we might apply control measures which either destroy the organism, break the cycle of infection, or render the host immune. Then we develop the administrative techniques necessary to apply our knowledge. This might be a highly complex process, involving many people, organizations, and institutions, and much education, as in the field of tuberculosis control.

If such a plan turns out to be completely successful, there is no further need to be concerned about treatment of the disease. When the need arises to treat a case of smallpox, it is a confession of failure on the part of the health department. This is true even when treat-

ment of the individual case is an important step in breaking the chain of infection, as in the venereal diseases.

This methodology has been highly successful in controlling smallpox and malaria. It has not been successful in controlling poliomyelitis. Since we have not been able to prevent poliomyelitis, we have expended our energies in treating the disease in order to prevent—partially—death and disability; and this is exactly what we have been doing with the problem of prematurity. The big difference is that we have never given up in our search for preventive measures in poliomyelitis; whereas we have not even thought of the possibility of applying them to prematurity.

Public Health Approach

Let us suppose that we might apply any public health methodology to this problem.

Our objective is simply stated—to reduce the incidence of prematurity and the mortality rate associated with it.

Our problem is that a varying number of pregnancies terminate prematurely in the delivery of one or more infants weighing 2,500 grams or less. The smaller the infant, the less is the chance for survival. The solution of the problem must lie in efforts to prolong pregnancy, and, where this is unsuccessful, to reduce the hazards, first, of delivery, and second, of early life.

At this point we must ask ourselves whether such an effort is worthwhile. Is the problem sufficiently serious? Is there any body of knowledge or experience which suggests that control is possible; and, if so, does this require organized community action?

* Presented at the meeting of the Convention of Western Hospitals, Los Angeles—May 3, 1951.



In 1949, prematurity was the tenth leading cause of death in this country.¹ * It outranked, among other things, poliomyelitis, rheumatic fever, and chronic rheumatic heart disease. With only nine more deaths from prematurity, it would have nosed out diabetes for ninth place.

During this same year there were, in California, 244,084 live births.² Of these, 16,893 weighed 2,500 grams or less, giving an incidence of prematurity of 6.9 percent. You might compare, momentarily, these 16,893 prematures with the highest number of cases of poliomyelitis reported in any one year in California—6,152 in 1948.

An accurate determination of the fatality rate has not been made, as it would require the matching of birth and death certificates. Such a study is in progress. However, the number of deaths during 1949 which were attributed to or had mention of prematurity was 2,952, a figure equivalent to 17.5 percent of the premature births.

This is roughly comparable to the mortality experience for prematurity reported by 238 California hospitals in 1949. These are hospitals licensed by the State Department of Public Health. They do not include tax-supported hospitals, but their reports include about two-thirds of the live births for that year. The incidence of prematurity was approximately 6 percent, and the mortality in this group about 18 percent.

Economic Aspects of Prematurity

This reference to hospital experiences suggests another important facet of this problem—the economic. In this State 97 percent of the deliveries occur in hospitals.³ Furthermore, those prematures not born in hospitals are apt to be admitted if they live long enough. The average stay of those who survive is usually reported to be about 30 days, and you can calculate the costs of such a period of hospitalization on the basis of your own experience. It is reported that the average cost per case in the program of the Illinois State Health Department is about \$400;⁴ and their reported per diem costs are about half of those in California.⁵ From the standpoint of the family, this represents an unexpected doubling or tripling or quadrupling of the anticipated cost of having the baby. Prematures are definitely in the luxury class.

To the parents, there are many problems besides the financial one. There are heavy anxieties about the mother's health in many cases; about the threatened waste of the pregnancy, about the prolonged separation from the infant, about the mother's ability to take proper care of such a delicate creature when he finally comes home, about the eventual prognosis, about men-

tal deficiency. There are often troublesome feelings of guilt on the mother's part. All of these are important to consider if we want to secure not only a living infant, but one who will have a fair chance for healthy emotional development in a happy family.

Public Health Significance

Now, unquestionably, any communicable disease which resulted in 17,000 cases and 3,000 deaths in any one year in California would be considered a public health problem of great importance; and the entire community would not only recognize the problem but would be clamoring for action. Why is there not an equivalent public concern about prematurity?

One can postulate several reasons. First, and this may be a rather cynical viewpoint, is the fact that while you and I might catch poliomyelitis, it is statistically unlikely that we will suffer from prematurity; this condition is not a physical threat to anyone except a fetus in utero. A second reason, related to the first, may be that the great majority of deaths from prematurity occur so early in life that the infant has not established any identity in the community as a person. It is only when we review the deaths as they mount up in statistical tables that we realize what a profound waste is taking place. A third reason, perhaps the most important, is that we have too often taken a defeatist attitude toward this problem. We have persuaded ourselves that we were witnessing nature's effort to empty the uterus of an unfit specimen, and we have assumed that there was no way to prevent this. There is little hope of arousing general interest in a problem unless we can suggest some solutions. Now, we are told, this is becoming a possibility.

Possibilities of Prevention

The traditional public health approach to a problem is to examine the possibilities of prevention. What are the possibilities here?

The cause of any particular premature labor is not clearly evident in perhaps 40 percent of the cases. Among the important identifiable conditions, toxemia is the most frequent. Other causes include premature separation of the placenta, placenta previa, multiple pregnancies, acute and chronic disease of various types in the mother. An added hazard to the infant is the practice of induction of labor on what have been felt to be maternal indications in toxemia and bleeding.

There is a great deal of evidence that the occurrence of prematurity is significantly less in mothers who are healthy and well-fed, who belong to the more favored economic and social groups, who do not have to work outside the home in the later stages of pregnancy, and who are under skillful and interested medical management during pregnancy.

* Bibliographical references indicated are to be found on page 188.

Maternal Nutrition

Of particular importance is the state of maternal nutrition. The studies of Burke, Ebbs and Tysdal, Tysson, Eastman, and many others^{6,7,8,9,10} all seem to show that expectant mothers who are on good diets, or who are given supplements to their ordinarily poor diets, tend to have fewer complications of pregnancy, fewer premature deliveries, larger and healthier babies.

If complications of pregnancy can be reduced by this method, or by any other type of medical management, it would affect not only the incidence of prematurity but the mortality. This is clearly shown by the work of Taylor¹¹ and his associates in Denver, in reporting a series of 3,625 consecutive deliveries. Of the 446 live premature births, about one-fourth resulted from pregnancies characterized by severe and uncontrolled medical or obstetrical complications. Two-thirds of the deaths occurred in this group comprising only one-fourth of the total number of cases.

Management of Complications

In considering the management of complications of pregnancy, the problem of the obstetrician is to balance two factors. On the one hand, prolongation of the pregnancy by even a week may mean the difference between life and death for the premature. On the other hand, the complication may itself be an added risk to the infant, not to mention the mother.

Certain recent developments in the management of these complications have tipped the balance in favor of the infant. The ready availability of blood for transfusions, the development of antibiotic therapy, and a somewhat better understanding of toxemia, have encouraged an increasing tendency toward a policy of watchful waiting, rather than early interference by induction. The importance of this principle is recognized in the program of the Colorado State Health Department, under which money available to pay for the hospitalization of premature infants may also be used for the hospitalization of expectant mothers who are threatening to deliver prematurely.

Prevention a Cooperative Venture

To develop a comprehensive program of better prenatal care requires the cooperative action of a lot of people, especially physicians, hospitals, and health departments. They must work together to find out which mothers are not getting prenatal care, and why. They must work out methods of getting mothers under care early, and of keeping them under care. The physician, whether in his private practice or in a clinic, should be able to command for his patient, as he sees fit, the services of public health nurses, medical social workers, and

nutritionists. Classes for expectant parents should be available. Welfare departments and family service agencies should be brought in to plan the provision of such things as special diets and housekeeping services where necessary.

And, following Colorado's good example, hospitalization should be made more readily accessible for threatened interruption of pregnancy.

Unfortunately, while such a program should materially reduce the problem, it will not eliminate prematurity entirely. Nevertheless, even after labor has started, there are measures available which can at least reduce the mortality.

Conduct of Labor

It is important to realize that, in California at least, two-thirds of the premature deaths occur in the first 24 hours of life. It is questionable how many of these could be saved by transportation to a well-equipped and well-staffed premature center. It is certain that we can't blame them on poor isolation techniques in the nursery. These deaths can be reduced, however, by techniques employed in the conduct of labor.

It has long been recognized that the premature infant is highly sensitive to oxygen deficit. His respiratory center is readily depressed by the analgesics and anesthetics commonly used during labor. With the development of conduction techniques, such as caudal and saddle block anesthesia, it is possible to avoid the respiratory depressing drugs. This is illustrated by the experience of Masters and Ross,¹² who have reported a 50 percent reduction in premature mortality with the use of conduction anesthesia in place of other methods.

Early Care of the Premature

This solicitude for the infant's oxygen exchange is just as important after he is born. The immediate assurance of a patent airway—by intra-tracheal aspiration—and the provision of ample oxygen is a matter of more immediate importance than a warm bed. It is at this point that teamwork between obstetrician and pediatrician is so very vital.

There is little to say about the nursery care of the premature that has not been said a thousand times over. I am sure that you all know about the importance of skilled professional attendants, the provision of adequate machines for preserving body heat and supplying oxygen, the proper preparation and sterilization, by terminal heat, of the formula. Epidemic diarrhea is an ever-present threat, requiring us to maintain a high level of suspicion. The importance of meticulous techniques and the provision of isolation and suspect nurseries should need no emphasis. This is the part of the job that I think we are doing the best.

The Parents Count Too

However, some people are beginning to wonder if someone else could not do it as well. It has been amply demonstrated that prolonged hospital care is not good for full-term babies. A well child does much better at home with mother, and so does his mother. Miller has shown that babies of 3½ pounds do as well when born and cared for at home, provided there is a good visiting nurse program, as they do in the hospital.

These things should lead us to wonder if, in our solicitude for the premature, we have been as energetic as we might have been in referring him to his parents. In the hospital care of prematures, parents have been tolerated, but not encouraged. Too often it has been our custom to give them hasty instructions at the last minute, which in their anxiety they often forget or misinterpret, but not enough effort has been made to prepare them, from the day of the delivery, for the homecoming.

This requires the closest teamwork between the physician, the nursery supervisor, the hospital social worker, and the public health nurse. The first three can learn to know the parents, the fourth learns to know the home. When parents are also made part of the team, when they have confidence in their ability and assurance that help will be available, they can assume responsibility for the infant long before he ceases to be a premature by definition. The decision in each case must be an individual one, and teamwork can make it an intelligent one.

A First Step in Prevention

Any hospital could start tomorrow by encouraging its medical staff to study the course of pregnancy in each premature death, as critically as we study such factors in each maternal death. Studies of this kind are the first step towards a preventive program adapted to the needs of your particular community.

Prematurity is a problem which bears heavily upon the hospitals, and hospitals have made a notable effort to meet this problem by providing more and better facilities and staff. They have taken leadership in establishing special centers to receive difficult cases from other institutions and to offer opportunities for training and research.

I would urge that hospitals display equal leadership in a program of prevention.

References

- ¹ U. S. National Office of Vital Statistics, *Current Mortality Analysis*, 7:13, Table 3, 1949.
- ² State of California, Department of Public Health, *Vital Statistics Records*, 1949.
- ³ ———, *Vital Statistics Records*.
- ⁴ *Journal, American Medical Association*, 142:494, Feb. 18, 1950.
- ⁵ Herbolzheimer, H., *J. A. M. A.*, 144:542, 1950.
- ⁶ Burke, B. S., *American Journal of Public Health*, 39:334, Apr. 1945.
- ⁷ Ebbs, J. H., et al, *J. Nutrition*, 22:515, 1941.

1951 Summer Workshops on Youth Set for Claremont, Stanford

Two summer workshops have been arranged this year by the California Youth Committee and representatives of the 34 other state-wide voluntary organizations and official state departments who for the last several years have acted as a sponsoring group for conferences and summer workshops. Responding to the wishes of the sponsors who met at Asilomar in January, the Committee on Conferences and Workshops has planned programs which will provide opportunities for exploration of the possible effect a long period of mobilization may have upon children and youth. Emphasis will be placed upon the need for preserving the ideals and purposes of American democracy and avoiding the development of a philosophy of despair and defeatism, while recognizing that certain adjustments must be made by individuals and by groups.

The first workshop will be held at Scripps College, Claremont, July 23d to 27th, inclusive. Advance registration is \$6, with the balance of \$17.50 to be paid upon arrival.

The second workshop, "Youth in World Crisis," is to be held at Stanford University August 15th, 16th and 17th. Among the discussions to be featured in a slightly different program organization from the southern conference, will be "American Values and Ideals," "Family Life in a Period of Tension," "Youth and the Armed Forces." The cost of this workshop will be \$18 payable in advance.

Further information may be obtained from the following offices of the Youth Authority:

315 South Broadway, Room 301, Los Angeles 13
507 Polk Street, San Francisco 2
401 State Office Building No. 1, Sacramento 14
418 Mason Building, 1044 Fulton Street, Fresno

Sanitarian Position

The San Luis Obispo Civil Service Commission announces a vacancy for a sanitarian to be employed in the county health department. Applicants must possess a California certificate of registration. Salary is \$265 to \$305 per month. There is a 38-hour work week, with 15 working days vacation. Mileage or car furnished.

⁸ Tyson, R. M., *J. Pediatrics*, 28:648, June 1946.

⁹ Eastman, *Am. Practitioner*, 1:343, March 1947.

¹⁰ Burke, B. S., et al, *J. Pediatrics*, 23:506, Nov. 1943.

¹¹ Taylor, E. S., et al, *J. A. M. A.*, 141:904, Nov. 26, 1949.

¹² Masters, W. H., Ross, R. W., *J. A. M. A.*, 141:909, Nov. 26, 1949.

Acknowledgment is made to Virginia Breaks, Assistant Public Health Analyst, Bureau of Records and Statistics, who compiled data on prematurity in California.

New Local Health Centers for California

During the past fiscal year considerable progress has been made toward provision of suitable housing facilities for local health departments in California. Eight new health centers have now been approved for federal and state construction funds, seven during the 1950-1951 fiscal year and one in 1949-1950. One of these projects is now completed and occupied. In addition, seven new health centers financed with local funds have been occupied this year and construction started on another. The following table identifies these health centers and shows their present status.

Advisory Council

Allocation of federal and state funds to aid in the construction of health centers is subject to review by the Governor's Advisory Council on Hospital Facilities. This council assists the State Department of Public Health in carrying out provisions of the Hill-Burton Act and the California Hospital Survey and Construction Act.

The need for health centers in California has been brought to the attention of the council by a state survey of health department housing. This survey has shown

Health Centers Receiving Federal and State Construction Funds

Health Department	Type of Center	Location	Status
Butte County	Primary	Oroville	Preliminary Drawings
Fresno County	Primary	Fresno	Contract awarded
Kings County	Primary	Hanford	Preliminary Drawings
Los Angeles City	District	Westchester	Preliminary Drawings
Madera County	Primary	Madera	Occupied
San Benito County	Primary	Hollister	Preliminary Drawings
San Luis Obispo County	Primary	San Luis Obispo	Preliminary Drawings
Santa Clara County	Primary	San Jose	Preliminary Drawings

Health Centers Locally Financed

Butte County	Sub-center	Chico	Occupied
Imperial County	Primary	El Centro	Occupied
Long Beach City	Primary	Long Beach	Occupied
Los Angeles City	District	Hollywood	Construction started
Los Angeles County	District	Bellflower	Occupied
Los Angeles County	District	Huntington Park	Occupied
Monterey County	Primary	Salinas	Occupied
Placer County	Primary	Placer	Occupied

The 1951-1952 state plan for health center construction recently completed by the State Department of Public Health casts further light on progress made and the goal ahead. This plan outlines the type, size and location of housing facilities needed to furnish basic public health services in California and classifies existing housing as acceptable or nonacceptable.

The plan reveals that for the 52 organized local health departments in California, which cover 97 per cent of the population, approximately 1,000,000 square feet of housing space is needed. In July, 1950, there was approximately 329,000 square feet of housing space which was acceptable. The eight projects approved for federal and state participation will add 70,000 square feet of acceptable space and the eight new locally financed health centers will add another 95,000 square feet. Thus, approximately one-half of the million square feet of housing needed for the organized health departments has been provided for.

the gross inadequacy of present facilities. Testimony of local officials has pointed up the fact that the building of health centers more suitable structurally for carrying on public health programs and services, with adequate working space for the health department staff and accessibly located to serve the people of the health jurisdiction, will help materially to improve operating efficiency and extend services. Health officers have also pointed out that good preventive services will unquestionably relieve hospitals of a future burden.

Health Officers' Study Committee

A major contribution in the development of the state plan for health centers and in finding an objective system of priorities for allocating available funds has been made by the Study Committee on Health Center Construction of the Conference of Local Health Officers. Such complex problems as estimating the amount of administrative and clinical space needed by health

departments of varying size, developing criteria for determining acceptable space, obtaining an inventory of present housing space, classifying existing space as to acceptability or nonacceptability, and establishing a priority formula for the allocation of available funds have been worked out. Both the state plan and the priority formula remain subject to further study and refinement.

Priority List

At the May meeting of the Conference of Local Health Officers a priority list was recommended for the allocation of available funds in the 1951-1952 Fiscal Year. The first 10 health departments on this list are Colusa County, Mariposa County, Modesto City, Plumas County, Inyo County, Marin County, Berkeley City, Sacramento County, Alameda County, and San Jose City.

Construction aid for 1951-1952 Fiscal Year is contingent upon passage of a federal appropriation making funds available and allocation by the department and the Hospital Advisory Council of additional funds for health centers.

Registration Exam for Sanitarians

An examination for registration as a sanitarian in California will be held July 25th in Berkeley and Los Angeles. July 14th is the last date for filing application with the Bureau of Sanitary Engineering, State Department of Public Health, 2180 Milvia Street, Berkeley.

NOTICE OF HEARING

The State Board of Public Health will hold a hearing on July 13, 1951, at 10 a.m., in Room 668 Phelan Building, 760 Market Street, San Francisco, California, on proposed amendment to the regulations governing the issuing of the California Public Health Nursing Certificates (California Administrative Code, Title 17, Chapter 4, Subchapter 5, Group 1, Article 1, Section 4500), pursuant to authority of Sections 208, 600 to 603 of the Health and Safety Code.

The proposed amendment provides for the issuance of the certificate only to nurses who have completed an approved university program of study in public health nursing and abolishes certification by examination.

Copies of the present and proposed regulations are available for inspection in the California State Department of Public Health, Los Angeles and San Francisco offices. Said proposed regulations are made a part of this notice by reference.

P. H. S. Water Pollution Control Funds to Be Administered by Water Board

On May 3d the State Department of Public Health officially transferred to the State Water Pollution Control Board the unexpended balance of funds received from the U. S. Public Health Service under the terms of Public Law 845, the federal water pollution control bill. This law, in addition to authorizing sums for the purpose of making loans to cities and industries for the correction of water pollution, allocates money to states for expenditure by their respective "state water pollution agency" for the conduct of investigations, research service, and studies related to the prevention and control of water pollution caused by industrial wastes.

For the past year and a half, the State Department of Public Health, designated by the Governor as the state water pollution control agency, has carried out this assignment with an annual grant of approximately \$28,000. The State Water Pollution Control Board, in conformity with definition of responsibilities, has recently been designated by the Surgeon General of the Public Health Service, and at the request of the Governor, as the state water pollution agency in California, and thus assumes responsibilities under Public Law 845.

Over half of the water pollution funds administered by the State Department of Public Health in the past year and a half have been used for financing a contract with the University of California to conduct research in the field of industrial waste disposal and the remainder has been used to support studies and investigations leading to the compilation of baseline reports on the water pollution problems of the State.

Orange County Publication

Carrying an attractive orange and blue masthead, *Public Health Reports* was published in June as the first issue of the Orange County Health Department's new quarterly bulletin. The bulletin carried an announcement of the county-wide immunization program developed by the Medical and Health Services Division of the Orange County Office of Civil Defense. This program, in which the medical profession is offering at a minimum charge complete immunization series for typhoid, smallpox, diphtheria, tetanus, and whooping cough, began June 15th and will continue through September 15th.

No subject is more intimately connected with the happiness and prosperity of a people than the degree of public health that they enjoy.—Lemuel Shattuck.

Planning for Public Health Services in a Disaster

Public health services in an emergency are directed to protecting the health and well-being of the community, preventing the spread of communicable disease and maintaining vital records. These services constitute an integral part of the medical and health services program of state, regional and local civil defense organization. There is an inevitable tendency for these essential public health services to be overshadowed by the more spectacular and dramatic services related to the medical care and hospitalization of casualties resulting from a major disaster. These public health services must not be lost sight of, however, as they contribute to the health and morale of the entire community.

Organization

The fundamental difference in planning for the public health services in a disaster, as compared with the medical care of casualties, is that these functions, like fire protection and law enforcement, are merely extensions and adaptations of the normal peacetime services of an organized official agency of government, staffed permanently with trained and qualified professional and technical personnel. The problem here is not that of recruiting, organizing, and training large numbers of professional personnel normally engaged in the private practice of medicine and allied occupations as individuals. It is, rather, the integration at the time of a major disaster of an existing agency of government into the administrative and operational pattern of the civil defense organization. It is for this reason that both federal and state recommendations are that the duly constituted health officer be designated as the administrative head of the entire health service division of the civil defense organization. This has been done in California at the state level and in most of the metropolitan areas which would be likely target areas.

Functions

Federal planning, as set forth in the manual "Health Services and Special Weapons Defense," AG-11-1, envisions the inclusion of only certain of the normal health department functions in the civil defense program, namely: environmental sanitation; vital statistics; public health laboratory services and industrial health, and adds other functions such as mortuary services which are not normal responsibilities of a health department. This makes it necessary for the health officer to plan for two distinct areas of responsibility, namely:

- (1) The civil defense program in certain designated functions, as stated above, and directed basically to the actual victims, casualty and non-

casualty, of the disaster, and to those areas directly or indirectly affected;

- (2) The remainder of the community normally served by the health department.

The type and amount of these normal services which will be made available to this latter element of the population during a disaster will have to be determined locally. It is obvious that these will be minimal in amount and greatly limited in scope.

Liaison Planning

It has become increasingly apparent in attempting to work out this program, that public health services are intimately related to the activities of other essential civil defense agencies and, consequently, there is great need for coordination and joint planning. For example, those aspects of the sanitation program relating to water supplies and sewage disposal are a matter of joint concern with the utilities section of the civil defense organization and with normal operators of those facilities. Likewise, those relating to food are equally a concern of the welfare services, as are those having to do with housing and evacuation of elements of the population.

Such coordination and joint planning on civil defense at the state level is being accomplished through the pertinent subcommittees of the Governor's Citizens Advisory Committee on Medical and Health Services and through consultation between interested divisions of the State Office of Civil Defense. It is essential that comparable joint planning also be carried on at the local level between similar local groups.—*John C. Dement, M.D.*

Influenza Vaccine

Successful results of a "trial run" to determine how quickly a vaccine might be produced in sufficient quantity to help nationwide epidemics of especially virulent strains of influenza virus has been reported by the Public Health Service. Using a virus strain flown from England last January, 1,000 doses of vaccine were prepared by one pharmaceutical house within 22 days, by another in 23 days. Hitherto, six months to a year would have been needed for such preparation. Theoretically, this means that a large number of laboratories could produce enough vaccine in a short enough time to meet the immunization needs of this country. Field tests are being made to determine the efficacy of the vaccines just manufactured.—*Social Legislation, Information Service, May, 28, 1951.*

Board of Public Health Sets Policy on Recreation in Reservoir Areas

In answer to requests made by local health officers and water purveyors, the State Department of Public Health has formulated a definite policy on the recreational use of watershed areas and water supply reservoirs. This policy was endorsed by the State Board of Public Health at its meeting in Los Angeles on May 15th.

The board approved the following policy statement, with the proviso that further consideration will be possible in the light of suggestions from local health officers or the State and Regional Water Pollution Control Boards:

1. Recreational uses of water supply reservoirs should impose no greater risks of pollution or contamination of the public water supply than those already existing due to other uses of the watershed.

2. When no treatment is provided, or when chlorination is the only treatment, no recreational use, or very restricted use should be allowed, depending on the size and time of storage in the reservoir.

3. Recreational use of domestic water supply reservoirs should be limited to boating, fishing and hunting. No wading or swimming should be allowed by persons or animals.

4. Toilet facilities should be provided at convenient locations. Can-type chemical toilets with provision for disposal of contents off the watershed are preferred. In no case should sewage liquids or solids be deposited within 200 feet of the high water line and provision should be made for disposal in such a manner as to avoid overflow, drainage or seepage to reservoir waters.

5. Recreational use of both shoreline and water surface should be restricted to an appropriate distance beyond the intake tower. Actual distance (in no case less than 1,500 feet) will depend on factors of wind, water current, size and shape of reservoir.

6. Public health supervision of all recreational use by both the water purveyor and the local health department should be provided.

There were 209,040 physicians in continental United States as of December 15, 1950, an all-time high record, according to the annual licensure report of the American Medical Association.

California Morbidity Reports Reportable Diseases—Civilian Cases

Total Cases for May and Total Cases for January Through May, 1951, 1950, 1949 and Five-year Median (1946-1950)

Reportable diseases	Current month				Cumulative			
	May				January through May			
	1951	1950	1949	5-yr. median 1946-1950	1951	1950	1949	5-yr. median 1946-1950
Amebiasis.....	43	20	22	22	224	154	147	126
Anthrax.....	1				2	3		3
Botulism.....					8			
Brucellosis (undulant fever).....	13	6	14	15	40	37	50	57
Chancroid.....	29	22	35	35	148	132	245	216
Chickenpox.....	6,331	4,959	5,727	4,959	26,096	23,207	33,074	26,991
Cholera.....								
Coccidioidomycosis, disseminated.....	7	7	10	7	29	44	39	34
Conjunctivitis, acute infectious of the newborn.....	1	1	2	2	4	3	5	7
Dengue.....								
Diarrhea of the newborn.....	2	9	1	9	14	45	17	45
Diphtheria.....	18	19	29	30	94	169	200	245
Encephalitis, infectious.....	6	3	2	5	24	30	15	17
Epilepsy.....	109	166	144	146	683	915	954	815
Food poisoning.....	14	63	83	53	61	943	274	199
German measles.....	1,059	374	2,744	634	3,381	1,441	15,544	2,349
Gonococcus infection.....	1,524	1,595	1,492	1,857	6,963	7,842	9,150	10,994
Granuloma inguinale.....		4	1	4	5	12	13	15
Hepatitis, infectious.....	10	30	113	12	115	166	316	89
Influenza, epidemic.....	80	29	33	65	3,918	324	610	653
Leprosy.....	1				4	2	3	4
Leptospirosis (weil's disease).....	1		1		1	2		
Lymphogranuloma venereum.....	11	19	14	17	43	57	95	95
Malaria.....	1	1		7	2	1	9	21
Measles.....	19,134	3,597	6,371	6,371	53,492	9,569	34,882	34,882
Meningitis, meningococcal.....	25	19	20	20	157	142	149	161
Mumps.....	2,530	5,497	5,242	4,827	10,158	24,241	25,604	17,977
Pertussis.....	323	1,145	347	1,145	1,153	4,004	1,315	2,236
Plague.....								
Pneumonia, infectious.....	193	140	108	130	1,240	1,030	926	1,001
Polioomyelitis, acute anterior.....	63	91	49	54	414	333	393	267
Psittacosis.....		1	1	1	3	4	6	4
Rabies, animal.....	6	16	13	23	30	38	99	134
Rabies, human.....							1	
Relapsing fever.....								
Rheumatic fever ¹	29	51	45	60	115	246	287	316
Rocky Mountain spotted fever.....	2	1	1		2	1	3	
Salmonella infections ²	16	114	10	11	99	184	38	38
Shigella infections (bacillary dysentery).....	38	40	20	20	184	184	113	113
Smallpox.....								
Streptococcal infections respiratory including scarlet fever.....	1,186	609	318	486	4,885	3,134	2,342	3,134
Syphilis.....	960	1,038	1,109	1,147	4,191	4,614	6,298	7,146
Tetanus.....	3	6	5	6	19	19	19	19
Trachoma.....		9	2	3		16	5	9
Trichinosis.....	3	4	5	4	8	11	8	9
Tuberculosis: Respiratory.....	839	862	687	708	3,591	3,573	3,434	3,434
Other forms.....	47	52	54	54	186	202	203	203
Tularemia.....	3				4		1	1
Typhoid fever.....	9	8	7	8	25	33	38	39
Typhus fever.....								6
Yellow fever.....								

¹ Rheumatic fever cases over age 21 are excluded beginning January 1, 1951.

² All types of salmonella infections now reportable. Prior to January 1, 1950, only A, B and C types were reportable, hence five-year median not entirely comparable.

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